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THE SUBSEQUENT HISTORIES OF PATIENTS WHO HAVE RECOVERED AFTER OPERATION FOR PERFORATED GASTRIC OR DUODENAL ULCER.

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There has been considerable discussion lately upon the question whether or not a gastrojejunostomy should be performed at the same time that laparotomy and suture are undertaken for a perforated gastric or duodenal ulcer. Moynihan (Med. Chir. Trans., London, 1907) is in favour of it, upon the ground that it minimises the chances of subsequent ill-effects from the ulcer. Paterson (Hunterian Lectures, *Lancet*, vol. i., 1906), is also in favour of it in some cases. There can, of course, be little doubt that the performance of gastrojejunostomy at the time of the operation for perforation is an additional tax upon the strength of the patient, if only on account of the extra minutes for which the anæsthesia and manipulation must be prolonged. The answer to the question whether such additional tax is advisable or not must depend in great part upon a comparison of the after-effects with and without the gastrojejunostomy respectively. If it were certain, for example, that without gastrojejunostomy the ulcer which has perforated is very liable to cause severe and chronic symptoms, pyloric stenosis, gastrectasis, subsequent perforations, severe hæmatemesis, or the like, and that gastrojejunostomy

rendered the patient much less likely to suffer from these after-effects, then there would be an argument of considerable weight in favour of gastrojejunostomy at the time of perforation; though even then it might be wiser to simply suture the perforation during the acute attack, leaving gastrojejunostomy to be performed after recovery from the peritonitis.

The crucial question is, therefore: Are the subsequent histories of patients who have recovered after simple suture of a perforated ulcer good or bad?

There are not a great many statistics upon the subject, but they are now beginning to accumulate. It is unfortunate that so many patients of the hospital class inevitably get lost sight of, otherwise the accumulation would be more rapid.

Mr. Crisp English (Med. Chir. Trans., 1903) found that only four out of fifteen cases had any gastric symptoms following the operation of closing the ulcer in St. George's Hospital. Mr. Paterson (*Lancet*, 1906) traced thirty-three cases, and found sixteen were perfectly well; fourteen had "dyspepsia," more or less severe, two requiring subsequent gastrojejunostomy, and one dying of a secondary perforation. Mr. Paterson's figures are certainly less favourable than those of Mr. Crisp English, but even so, half the patients that he traced were free from subsequent symptoms.

Guy's Hospital, up to 1905, discharged thirty patients recovered from perforated gastric or duodenal ulcer treated by laparotomy and suture; twelve of these have been lost sight of, but eighteen have been traced; these arrange themselves into two distinct groups, namely:—

A. Those who have been free from gastric symptoms since their operation, and have been able to follow their laborious occupations as labourers, domestic servants, and so on: fifteen cases.

B. Those who have suffered from dragging pains and other symptoms more or less severe, which render them quite unequal to their fellows in working power: three cases.

The following are notes about the individual patients:—

GROUP A.—*Those who did well afterwards.*

CASE 1.—William P., aged 43. He was admitted on July 30th, 1898, and was operated upon three hours after the perforation took place. The hole was upon the anterior surface of the stomach, near the cardiac end of the stomach. It was sutured, and the patient went out thirty-two days later. He had had lassitude, gastric pain after food, and nausea for two and a half years previously, but never hæmatemesis. He had seen many consultants. The condition had been repeatedly diagnosed as nervous dyspepsia, for which the patient had twice been sent for long voyages. In October, 1906, he came to show himself; he was strong and well, actively engaged in business, and he had had no gastric symptoms whatever since his operation. The scar was from the ensiform cartilage to the pubes, narrow and strong.

CASE 2.—Nellie R., aged 26. She was admitted on March 8th, 1900, and was operated upon seven hours after the perforation occurred. The hole was upon the anterior surface of the stomach, close to the pylorus: it was sutured; the abdomen was washed out and completely closed. The patient went out forty-three days later. Previous to the perforation she had had "indigestion" for two years on and off, with pains soon after eating, and occasional vomiting, but never hæmatemesis. In October, 1906, she writes, ". . . I am now married, and have been two and a half years out of London. I am most pleased to tell you that I have had splendid health, with no return of my old complaint whatever. Not only have I been free from pain, but I am quite able to eat anything in the way of fruit and vegetables, which I could never do before."

CASE 3.—M. He was operated upon for perforated gastric ulcer in 1900; the ulcer was simply sutured. The patient recovered well, and he had had no gastric symptoms since. In October, 1906, he was in good health, and busily engaged as a bank clerk.

CASE 4.—William S., aged 17. He was admitted on December 28th, 1901, and was operated upon four and a half hours after the perforation. The latter was in the duodenum. The ulcer was excised and the duodenum sutured. There had been no previous symptoms, the patient stating that he had not been ill in any way since he was a child. After the operation there was much local suppuration, and the wound took a long while to heal. There was still a sinus on discharge, ninety-one days after the operation. In October, 1906, he presented himself for examination. He had returned to his heavy work as a waterside labourer one month after he left the hospital, and had continued at it ever since without a bad symptom of any kind. When seen, he was a big strong healthy workman, with an abdominal scar ten inches long and two and a half inches wide in the middle line. The scar, though it looked thin and weak, showed no sign of developing into a ventral hernia, though the man wore no belt even at his heavy work.

CASE 5.—John R., aged 25. He was admitted on July 4th, 1903, and was operated upon five hours after the perforation. The latter was in the

anterior surface of the stomach, near the pylorus; it was simply sutured. The patient went out twenty-six days after the operation. Previously there had been epigastric pain after food for twelve months, with flatulence, but neither vomiting nor hæmatemesis. In October, 1906, he writes that he is actively engaged as a stevedore, and that he is perfectly well.

Case 6.—Annie E., aged 21. She was admitted on March 12th, 1903, and was operated upon three hours after the perforation. The latter was upon the posterior surface of the stomach, near the pylorus. It was simply sutured, and the patient went out thirty-six days later. There had been no gastric symptoms previously, and no melœna. She writes in October, 1906, that: "I am very glad to be able to say that I am still continuing in the best of health." She works as a ward maid.

Case 7.—Robert C., aged 43. He was admitted for perforated gastric ulcer upon September 4th, 1904. In October, 1906, he writes that: "While thanking you for your letter, I wish to say that I am very well. I have only had an occasional slight pain, which, perhaps, may not be due to the complaint." He works as a stoker.

Case 8.—Isaac L., aged 35. He was admitted on March 30th, 1905, over twenty-four hours after perforation. At the operation two perforations were found, both in the stomach; one was a small hole in a big ulcer on the anterior surface, near the pylorus; the other was a small hole due to an acute ulcer on the anterior surface of the stomach near the cardiac end. Both were simply sutured. The patient went out thirty-five days afterwards. He was known to have had a gastric ulcer for a long time. He had had many severe attacks of hæmatemesis from 1897 onwards, but had always been able to work hard as a labourer between the attacks. In October, 1906, he writes that he is at work, and that "I am glad to say that I am getting on nicely and have had no pain since my operation."

Case 9.—Beatrice L., aged 28. She was admitted on January 22nd, 1905, twenty-six hours after the perforation. The latter was in the stomach, near the pylorus, on the anterior surface towards the lesser curvature. There were many hindrances to her recovery. She developed pleurisy with broncho-pneumonia soon after the operation. The pleurisy led to effusion, and paracentesis thoracis was performed. After this she developed thrombosis of veins in her left arm and right leg, and an abscess in her right breast, which had to be opened and drained. Notwithstanding this, she went out 127 days after admission. In October, 1906, she writes: "I am pleased to be able to tell you I have been in the best of health since my discharge from the hospital." She works as a domestic servant. Previous to her admission she had suffered for three years from epigastric pains, which were worst half an hour after food, and she had had severe hæmatemesis twice.

Case 10.—William G., aged 30. He was admitted on January 9th, 1905, fifty hours after the onset of symptoms of perforation. He had had "indigestion," but neither vomiting nor hæmatemesis, ever since his

return from the South African war eighteen months before. The perforated ulcer was on the anterior wall of the stomach, near, but not at, the pylorus. The hole was sutured and the patient left the hospital sixty-one days later. He writes in October, 1906: "My general health has been good since the operation; very occasionally I still have a little dyspepsia, which I suppose was the cause of my complaint, and which I put down to being compelled to lead an indoor life." He works as an indoor porter.

Case 11.—William E., aged 26. He was admitted upon February 17th, 1905, and was operated upon six hours after the perforation. The latter was on the anterior surface of the stomach, near, but not at, the pylorus. It was simply sutured, and the patient left the hospital twenty-seven days later. Previously he had had neither vomiting nor hæmatemesis, but for three months had complained of "some discomfort" in the epigastrium about half an hour to one hour after meals. In October, 1906, he presented himself for examination. The scar, which was from the epigastric angle to the umbilicus, was strong and narrow. The man had been hard at work as a labourer since his discharge. He was looking as well as possible, and had no bad symptoms of any sort.

Case 12.—Charles P., aged 48. He was admitted upon April 16th, 1904, for the usual symptoms, and was operated upon within a few hours of the onset of perforation. The hole was in the duodenum, one inch beyond the pylorus; it was simply sutured, and the patient went out thirty-nine days afterwards. Previously he had had "indigestion" badly for six years, with intervals of perfect health for four or five months at a time. There had been neither hæmatemesis nor melæna. In October, 1906, he writes: "I beg to state that my health is, and has been, very favourable indeed."

Case 13.—William N., aged 48. He was admitted upon June 7th, 1899, and was operated upon within three hours of the onset of acute symptoms. The perforation was in the anterior wall of the stomach, near the pylorus. It was sutured. The patient went out fifty days later. He had suffered severely from "dyspepsia," which had started at a definite time seven years before; there had been epigastric pains which had become worse during the two and a half years preceding the perforation. There had been neither hæmatemesis nor melæna. He remained free from gastric symptoms for four years after the operation, and then he died of cerebral hæmorrhage.

Case 14.—Caroline F., aged 22. This patient had twice suffered from, and survived, perforated gastric ulcer. The first time was in March, 1900; she was operated upon within twelve hours of the perforation, the ulcer being excised and the stomach sutured. She remained well until the end of 1904, when she had another sudden perforation, which was sutured. Since then she writes that she has remained in excellent health (October, 1906), working as a domestic servant. It is noteworthy that the second perforation occurred notwithstanding excision of the first ulcer. Previous to her first admission she had for two years had "indigestion pains" after food, with very occasional vomiting, but no hæmatemesis nor melæna.

Case 15.—Robert B., aged 22. He was admitted on July 16th, 1904, and was operated upon within a very few hours of perforation. The hole was upon the anterior surface of the stomach, some way from the pylorus; it was sutured. The patient went out thirty-two days later. Previous to admission he had had gastric pains for two weeks only; he had hæmatemesis the day after the operation, but never before or since. In October, 1906, he came for examination. He was strong and well, and actively engaged as an engineer. His work took him to all parts of England and Scotland, and he had not been a day away from it since his recovery.

Group B.—*Patients who suffered from more or less severe after-effects.*

Case 16.—Alice B., aged 36. She was admitted on October 28th, 1901, and was operated upon thirteen hours after the perforation occurred. The ulcer was upon the middle of the anterior surface of the stomach, half-way between the lesser and greater curvatures, and half-way between cardiac and pyloric orifices. The hole was sutured. The patient went out sixty-four days later. She remained well for a short time, but then began to suffer from severe dragging abdominal pains. In April, 1904, she was operated upon again; numerous adhesions were found; many of these were divided. The pains, however, persisted as before, and still do.

Case 17.—Sophia G., aged 21. She was admitted in March, 1894, for the usual symptoms of perforated gastric ulcer. She had had no previous stomach symptoms. She was operated upon within a few hours of being taken ill. The ulcer was excised and the stomach sutured. She suffered from abdominal discomfort and pains in the abdomen during the next eighteen months, and in September, 1895, she was re-admitted, with typical symptoms of acute intestinal obstruction. An operation was performed; the obstruction was due to the kinking of a loop of small intestine which was adherent to the abdominal wall at the seat of the old scar. The patient died of pneumonia seven days afterwards.

Case 18.—Frederick W., aged 34. He was admitted on February 6th, 1901, and was operated upon eight hours after the symptoms of perforation began. He had previously had "indigestion" for some months, but no vomiting, hæmatemesis, nor melæna. At the operation the ulcer which had perforated was found on the anterior surface of the stomach near the cardiac end. It was found impossible to suture the hole. The stomach was plicated so as to form a trough or channel for drainage from the perforation to the abdominal wound. A local abscess developed, and a sinus persisted for a long time. It was obvious at the time that many adhesions must result, and much deformity of the stomach. The man, a big, burly market-porter, has been almost incapacitated for work since. He has repeated recurrences of agonising abdominal pains. An operation for division of some of the adhesions was performed in November, 1901, and a gastrojejunostomy a little later. No relief followed even the latter. The pains are apparently due to dragging upon extensive adhesions, and not to the persistence of an ulcer, nor to any pyloric stenosis or dilatation of the stomach.

It seems needless to give the incomplete notes of the twelve cases that have not been subsequently traced. They have changed their addresses, and cannot be found. It is possible, of course, that they all did badly, though there is no evidence of this one way or the other. The present discussion must necessarily be confined to the cases that have been traced.

The following is a tabular summary of the eighteen cases:—

	Sex.	Age.				
1.	M.	43.	Perforated gastric ulcer.	Suture ...	Quite well	$8\frac{1}{4}$ years after.
2.	F.	26.	„ gastric „	Suture ...	„	$6\frac{1}{2}$ „
3.	M.	—	„ gastric „	Suture ...	„	6 „
4.	M.	17.	„ duodenal „	Excision and suture	„	$4\frac{3}{4}$ „
5.	M.	25.	„ gastric „	Suture ...	„	$3\frac{1}{4}$ „
6.	F.	21.	„ gastric „	Suture ...	„	$3\frac{1}{2}$ „
7.	M.	43.	„ gastric „	Suture ...	„	2 „
8.	M.	35.	Two simultaneous perforated gastric ulcers.	Suture ...	„	$1\frac{1}{2}$ „
9.	F.	28.	Perforated gastric ulcer. Complications.	Suture ...	„	$1\frac{3}{4}$ „
10.	M.	30.	Perforated gastric ulcer.	Suture ...	„	$1\frac{3}{4}$ „
11.	M.	26.	„ gastric „	Suture ...	„	$1\frac{3}{4}$ „
12.	M.	48.	„ duodenal „	Suture ...	„	$1\frac{1}{2}$ „
13.	M.	48.	Perforated gastric ulcer. (Ultimately died of apoplexy.)	Suture ...	„	$2\frac{1}{2}$ „
14.	F.	22.	Perforated gastric ulcer. Second time.	Excision and suture	„	$1\frac{3}{4}$ „
15.	M.	22.	Perforated gastric „	Suture ...	„	$2\frac{1}{4}$ „
16.	F.	36.	„ gastric „	Suture ...	Bad adhesions. Operation for division of these. Has bad pains.	
17.	F.	21.	„ gastric „	Excision and suture	Intestinal obstruction by kinking of bowel 18 months after. Death.	
18.	M.	34.	„ gastric „	Drained without suture.	Bad pains; not relieved by division of adhesions nor by gastrojejunostomy.	

One of the patients, it will be noticed, had had perforated gastric ulcer upon two separate occasions; most collections of statistics contain one or two examples of this, but upon the whole the liability to a second perforated gastric ulcer is not great. The case above was not one of those in which the

original ulcer persisted and perforated a second time, for the original ulcer was excised; it was a new ulcer, which formed and perforated some time after. It has been maintained that this is less likely to occur when gastrojejunostomy has been performed; even if this be the case, however, the liability to a second perforation is not great enough to afford any strong argument in favour of gastrojejunostomy at the time of laparotomy and suture.

It will be seen that of the eighteen cases of perforated gastric or duodenal ulcer which recovered after operation, and which have been subsequently followed up for periods varying from under two years to over eight years, fifteen, or 83 per cent., have done extremely well; whilst only three, or 17 per cent., have done badly.

These figures are, of course, for a comparatively small number of cases; but they are consecutive, and not selected. They agree very closely with the St. George's Hospital statistics compiled by Mr. Crisp English (*loc. cit.*).

Gastrojejunostomy was not performed in any of the cases at the time of suture. It is clear, of course, that if the ulcer which perforates has already led to pyloric stenosis, gastrojejunostomy is indicated either at the time or soon afterwards; but in the majority of cases which do badly the subsequent troubles are not due so much to the ulcer itself as to the perigastric adhesions resulting from the general peritonitis. Gastrojejunostomy would not be likely to minimise the formation of these adhesions to any great extent. The fact that so many of the patients do so well with simple suture is a considerable argument against the performance of the additional operation of gastrojejunostomy as a routine procedure at the time of laparotomy for the perforation of a gastric ulcer.